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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/598,307

11/24/2006

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EXAMINER

NGUYEN, THAN VINH

ART UNIT

PAPER NUMBER

2187

NOTIFICATION DATE

DELIVERY MODE

02/18/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com  
pto@gbpatent.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/598,307	<b>Applicant(s)</b> NAKANISHI ET AL.	
	<b>Examiner</b> Than Nguyen	<b>Art Unit</b> 2187	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/24/06, 4/30/07</u> .                                       | 6) <input type="checkbox"/> Other: _____                          |

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### **DETAILED ACTION**

1. Claims 1,3,5-13 are pending. Claim 4 has been canceled.
2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

3. The IDSes, filed 11/24/06 and 04/30/07, have been received.
4. The information disclosure statement filed 4/30/07 fails to comply with 37 CFR 1.98(a)(1), which requires the following: (1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement. The information disclosure statement has been placed in the application file, but the information referred to therein has not been considered. Applicant should list references to be considered on a PTO-1449 form.

### ***Specification***

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Nonvolatile Memory Device Employing A Write Completion Flag Table.

### ***Claim Rejections - 35 USC § 112***

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6. Claims 1-3,5-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. As to claim 1, the following language “a non-volatile control memory for storing a writing completion flag table which is **provided to said corresponding main storage memory every second storage capacity unit smaller than said first storage capacity** and **consists of writing completion flags placed when data writing is completed**” is run-on and vague. It is unclear as what is being claimed. Applicant must clarify the claim language to more clearly define the invention.

8. As to claim 6,7 the language “said control part **composes a memory map of the writing completion flag table at initialization or factory shipment** based on a **preliminarily stored second storage capacity unit**” is vague and indefinite. What does it mean to **compose a memory map of the writing completion flag table** (location of support is requested)? Does Applicant mean to generating/forming the writing completion flag table? What does it mean to compose the map **at initialization**? What is being initialized? What does it mean to compose the map **at factory shipment**? Is the table generated during shipping from the factory to another location?

9. As to claim 9, the following language “a physical region management table for **storing conditions every storage capacity unit** of said main storage memory” is vague. Does Applicant mean storing conditions **for** every storage capacity unit? Clarification is required.

10. Dependent claims 2,3,5-13 are rejected for incorporating the error of the parent claim 1.

***Claim Rejections - 35 USC § 102***

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11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

12. Claims 1,5,9,10 are rejected under 35 U.S.C. 102(e) as being anticipated by Kubo (Machine Translation of JP 2001-005928).

As to claim 1:

13. Kubo teaches a semiconductor memory device comprising: a non-volatile main storage memory including a storage region consisting of a plurality of storage capacity units which are composed of a data region in a first storage capacity and management region (nonvolatile memory 0007; 0011);

an address management information storage part for storing address management information of said main storage memory (first table 222; 0015-0016);

a non-volatile control memory (FRAM; 0023) for storing a writing completion flag table which is provided to said corresponding main storage memory every second storage capacity unit smaller than said first storage capacity and consists of writing completion flags placed when data writing is completed (second table 23 store status flag for each memory; 0021-0023; if write is interrupted flag is set; 0044; 0054-0055); and

a control part for performing read/write control for said main storage memory in accordance with a direction of data read/write from a host and for performing update control for said address management information storage part and said control memory (control access to memory using first table 22, second table 23; 0060-0065; 0054-0055).

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As to claim 5:

14. Kubo teaches said control memory has higher writing-rate than that of said main storage memory (FRAM/FeRAM is faster than nonvolatile; 0023).

As to claim 9:

15. Kubo teaches said address management information storage part includes: a physical region management table for storing conditions every storage capacity unit of said main storage memory; and an address conversion table for converting an address designated by a file system of the host into an address of a storage capacity unit of said main storage memory (memory address mapping; 0015-0016).

As to claim 10:

16. Kubo teaches said control memory is a ferroelectric random access memory (FRAM/FeRAM; 0023-0025).

### ***Claim Rejections - 35 USC § 103***

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 2-3,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo (JAP 2001-005928) in view of Tanaka et al (US 7,054,991).

As to claim 2,3:

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19. Kubo teaches the storing completion flags for each block (0021-0023; 0044; 0054-0055) and does not specifically teach said second storage capacity unit is a cluster/sector size. It is well-known in the art to address nonvolatile memory by the sector and cluster, depending on the size/capacity of required by the access. Tanaka et al teaches accessing nonvolatile memory by the cluster, sector, or block (1/45-48; 2/14-26; 2/40-4/30). It would have been obvious to one of ordinary skills in the art to use implement Kubo's invention to store completion flags for each cluster/sector, as suggested by Tanaka et al, so that other memory size/capacity can be tracked.

As to claim 8:

20. Kubo teaches the main storage memory is a flash memory (00111 0016) but does not specifically teach the flash memory being multi-valued NAND flash memory. It is common and well-known in the art to use NAND flash memory. For example, Tanaka et al teaches using NAND memory for storage (1/25-44). Therefore, it would have been obvious to one of ordinary skills to substitute NAND or other type of flash memory for Kubo's flash memory, as suggested by Tanaka.

21. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo (JAP 2001-0059286)

As to claim 6,7:

22. Kubo does not specifically teach writing completion flag table at initialization or factory shipment based on a preliminarily stored second storage capacity unit. It is common in the art to prestore an initial data onto a memory/table upon initialization, such as clearing all data. Thus, it

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would have been obvious to one of ordinary skills to prestore data upon initialization to provide initial data for the applications.

23. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo (JAP 2001-005928) in view of Rinerson et al (US 6,917,539).

As to claim 11-13:

24. Kubo teaches the control memory being FeRAM/FRAM but does not indicate that it could be other types, such as magnetic random access memory (MRAM), ovonic unified memory (OUM), or resistance RAM (RRAM). It is well-known that many types of memory can be used to substitute FeRAM, each with its benefits. Rinerson teaches that magnetic random access memory (MRAM), ovonic unified memory (OUM), or resistance RAM (RRAM) have ideal characteristics that can be used as substitute for FeRAM (2/10-56). It would have been obvious to one of ordinary skills that magnetic random access memory (MRAM), ovonic unified memory (OUM), resistance RAM (RRAM), or FeRAM are equivalents which can be a substitute for one another, as suggested by Rinerson et al.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Than Nguyen whose telephone number is 571-272-4198. The examiner can normally be reached on 8am-3pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Than Nguyen/  
Primary Examiner, Art Unit 2187

Than Nguyen  
Primary Examiner  
Art Unit 2187